

The opinion in support of the decision being entered today
is *not* binding precedent of the Board

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SIVAPACKIA GANAPATHIAPPAN

Appeal 2007-0105
Application 10/698,607
Technology Center 1700

Decided: July 31, 2007

Before CHUNG K. PAK, CHARLES F. WARREN, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

DECISION ON APPEAL

Applicant appeals to the Board from the decision of the Primary Examiner finally rejecting claims 6 through 10 and 24 in the Office Action mailed September 9, 2005. 35 U.S.C. §§ 6 and 134(a) (2002); 37 C.F.R. § 41.31(a) (2005).

We affirm-in-part the decision of the Primary Examiner.

Claims 6 and 24 illustrate Appellant's invention of a method of preparing amphipathic polymer particles, and are representative of the claims on appeal:

6. A method of preparing amphipathic polymer particles comprising the steps of:

admixing an aqueous carrier, an unsaturated monomer containing a hydrophobic moiety, an unsaturated monomer containing a convertible moiety in hydrophobic form, and a surfactant to form an emulsion;

initiating a polymerization by adding a catalyst to the emulsion,

continuing polymerization at a temperature and for a period of time sufficient to form amphipathic polymer particles,

wherein the amphipathic polymer particles have a size range of 50-500 nm.

24. The method of claim 6, further comprising the step of converting the convertible moiety to a hydrophilic form after the amphipathic polymer particles are formed.

The Examiner relies on the evidence in these references:

Winnik	US 4,795,794	Jan. 3, 1989
Idogawa	US 5,942,560	Aug. 24, 1999

Appellant requests review of the following grounds of rejection all advanced on appeal (Br. 8):

claims 6, 9, and 10 under 35 U.S.C. § 102(b) as unpatentable over Idogawa (Answer 3-4);

claims 7 and 8 under 35 U.S.C. § 103(a) as unpatentable over Idogawa as applied to claims 6, 9, and 10 in view of Winnik (*id.* 4-5); and

claim 24 under 35 U.S.C. § 103(a) as unpatentable over Idogawa as applied to claims 6, 9, and 10 (*id.* 5-6)

Appellant argues the claims in the first and the second grounds of rejection as a group with the arguments with respect to both grounds focusing on the limitations of independent claim 6 (Br. 14-21). Thus, we

decide this appeal based on appealed claims 6, 7 and 24 as representative of the grounds of rejection. 37 C.F.R. § 41.37(c)(1)(vii) (2005).

With respect to independent claim 6 as well as claim 7, the Examiner contends Idogawa's method includes the step of admixing, among other things, "a carboxyl group-containing vinyl monomer, which falls within the scope of the instant unsaturated monomer containing a convertible moiety in hydrophobic form, in light of the interpretation of appellant's preferred 'convertible moiety-containing monomer' embodiment disclosed in the specification (col. 3, line 59 to col. 4, line 6; col. 6, lines 26-40)" (Answer 3 and 6). The Examiner contends this monomer is 2-methacryloyloxyethyl succinate, trade name "Acryl Ester SA," which is exemplified in Idogawa in the context of emulsion polymerization (*id.*). With respect to dependent claim 24, the Examiner acknowledges Idogawa "is silent regarding the recited step of converting the convertible moiety to a hydrophilic form," but finds the reference "discloses the inclusion of pH controller within the scope of the appellant's converting agents defined in the specification (i.e. organic and inorganic bases) in the resultant ink composition (col. 8, lines 35-42)" (*id.* 5). The Examiner contends Idogawa's "teaching embraces appellant's method of converting the convertible moiety to a hydrophilic form as interpreted in light of appellant's disclosure" (*id.* 5 and 7).

With respect to claim 6, Appellant contends Idogawa uses the hydrophilic form of the convertible moiety containing vinyl monomer 2-methylacryloyloxyethyl succinate because the reference discloses "a hydrophilic monomer alone . . . 'cannot be emulsion-polymerized in many cases, and the vinyl monomer mixed with a hydrophobic vinyl monomer is

preferably emulsion-polymerized”” (Br. 13-14 and 16, citing Idogawa col. 4, ll. 7-11 and 23-27; Reply Br. 2-3). Appellant contends “there is no teaching or suggestion of converting this ‘hydrophilic’ component to hydrophobic form” (Br. 14 and 15; Reply Br. 4). With respect to Winnik, Appellant contends that this reference and Idogawa “do not teach or suggest using a convertible moiety in hydrophobic form as required by claim 6” (*id.* 18 and 20, original emphasis omitted; Reply Br. 4-5). With respect to claim 24, Appellant contends Idogawa “fails to teach or suggest the conversion required in claim 24” because the reference “clearly does not contemplate a conversion step because after the emulsion polymerization process is complete, it would already be ‘amphipathic’” and “there is no suggestion of using the pH controllers . . . as a step after formation of dispersed particles” (Br. 21-22, original emphasis omitted, and Reply Br. 5-6).

The issues in this appeal are whether the Examiner has established a *prima facie* case of anticipation of claim 1 over Idogawa and whether the Examiner has established a case of *prima facie* obviousness over Idogawa alone with respect to claim 24 and as combined with Winnik with respect to claim 7.

The plain language of independent claim 6 specifies a method of preparing amphipathic polymer particles comprising at least the step, among other things, of forming an emulsion by admixing any aqueous carrier, any unsaturated monomer containing any hydrophobic moiety, any unsaturated monomer containing any convertible moiety in hydrophobic form, and a surfactant. Dependent claim 7 further limits the method of claim 6 by specifying the method includes a filtration step. The plain language of

dependent claim 24 limits the method of claim 6 by comprising at least the step of converting the formed convertible moiety of the amphipathic polymer particles to a hydrophilic form. With respect to the claim limitation “an unsaturated monomer containing a convertible moiety in hydrophobic form,” Appellant discloses that

[a]s defined herein, the term “convertible monomer” refers to monomers with long side chain acid groups. The convertible monomers are water insoluble in the monomer form. After polymerization, the acid group on the side chain of the convertible monomers can be converted to anionic salt by adjusting the pH of the solution to a basic range (pH > 7), i.e., the hydrophobic monomer incorporated into the polymer as a hydrophobic moiety, but is converted to a hydrophilic moiety under basic pH.

Specification 4:13-18; *see also* 6:15-25. Appellant exemplifies the “unsaturated monomer containing a convertible moiety in hydrophobic form” with, among other things, “mono-methacryloyloxyethyl succinate” (*id.* 5:13). The transitional term “comprising” opens the claims to include methods that have additional steps and materials. *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 802 (CCPA 1981) (“As long as one of the monomers in the reaction is propylene, any other monomer may be present, because the term ‘comprises’ permits the *inclusion* of other steps, elements, or materials.”).

There is no dispute that Idogawa discloses to one skilled and one of ordinary skill in the art a method of preparing a fine particle water base dispersion liquid for a water base ink by emulsion polymerizing a mixture containing, among other things, a vinyl monomer having an acid functional

group, wherein the vinyl monomer is “a vinyl monomer having a water solubility of 10% by weight or less, and can be, among other things, 2-methylacryloyloxyethyl succinate, trade name “Acryl Ester SA” having a water solubility of 1.86% by weight (Idogawa, e.g., col. 2, ll. 7-49, col. 3, l. 41, to col. 4, l. 27, and col. 6, ll. 26-40). In Idogawa’s Example 1, the mixture contains 2-methylacryloyloxyethyl succinate. The process of forming the amphipathic polymer particles can include the use of pH controllers such as, among other things, hydroxides of alkaline metals, but such use is not illustrated in Idogawa’s examples (*id.* col. 8, ll. 38-42).

We find Winnik would have disclosed an analogous dispersion polymerization process which does not include using a vinyl monomers having an acid functional group with limited water solubility as used by Idogawa, but can include the step of separating the product from the reaction mixture by filtration (*see* Answer 4-5 and Winnik, e.g., col. 3, l. 45, to col. 5, l. 4).

Appellant illustrates the emulsion polymerization process in Specification Example 1 wherein mono-methacryloyloxyethyl succinate is admixed with the other ingredients (Specification 12:21-29). After the polymerization reaction has cooled, “potassium hydroxide was added to bring the pH of the reaction mixture to pH > 7” (*id.* 12:29-31).

We agree with the Examiner that Idogawa’s 2-methylacryloyloxyethyl succinate satisfies the claim requirement for “an unsaturated monomer containing a convertible moiety in hydrophobic form” as this term is defined to include this monomer in Appellant’s Specification, and indeed, is further exemplified therein, including in Specification Example 1, as

“mono-methacryloyloxyethyl succinate.” We are not persuaded otherwise by the fact that Appellant describes this monomer as “hydrophobic” while Idogawa describes using the free acid form of the compound because Idogawa further discloses that this monomer has limited solubility. Indeed, this monomer is used in the free acid form in the process illustrated in Idogawa’s Example 1 just as it is in Appellant’s Example 1. Thus, we find as a matter of fact that Idogawa’s Example 1 satisfies all of the limitations of claim 6. To the extent that Appellant contends a different product results from the claimed method encompassed by claim 6, we note the guidance of a predecessor court to our reviewing court in *In re Sussman*, wherein the claimed and prior art method steps were the same: “[I]f appellant obtains a new product through reaction of the elements mentioned, it must be due to some step in the process not included in the claim.” 141 F.2d 267, 269-70, 60 USPQ 538, 541 (CCPA 1944).

Thus, the Examiner has established that *prima facie* Idogawa satisfies all of the elements of claim 6 in a manner sufficient to have placed a person of ordinary skill in the art in possession thereof, *see In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990), and accordingly, we affirm the ground of rejection of claims 6, 9, and 10 as a matter of fact under 35 U.S.C. § 102(b).

Furthermore, Appellant does not dispute the Examiner’s conclusion that *prima facie* one of ordinary skill in the art would have modified Idogawa’s method to include recovery of the product by filtration from the reaction mixture as taught by Winnik, which step is specified in

representative claim 7. Accordingly, we affirm the ground of rejection of claims 7 and 8 as a matter of law under 35 U.S.C. § 103(a).

With respect to claim 24, we agree with Appellant that the Examiner has not established that *prima facie* the process described by Idogawa includes the step of adding a pH controller to the reaction mixture *subsequent* to the formation of the amphipathic polymer particles as required by this claim.

Accordingly, on this record, we reverse the ground of rejection of claim 24 under 35 U.S.C. § 103(a) over the teachings of Idogawa.

The Primary Examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED-IN-PART

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